

DRAFT - ENHANCEMENT AREA ASSESSMENTS & STRATEGIES

Wetlands: Assessment

Section 309 Programmatic Objectives

- I. Protect and preserve existing levels of wetlands, as measured by acreage and functions, from direct, indirect and cumulative adverse impacts, by developing or improving regulatory programs.
- II. Increase acres and associated functions (e.g., fish and wildlife habitat, water quality protection, flood protection) of restored wetlands, including restoration and monitoring of habitat for threatened and endangered species.
- III. Utilize non-regulatory and innovative techniques to provide for the protection, restoration, and acquisition of coastal wetlands.
- IV. Develop and improve wetlands creation programs.

Resource Characterization

1. Extent of coastal wetlands

TABLE 1

Wetlands Type	Extent (acres & year of data)	Trends (\pm acres/year)			
		2001	2002	2003	2004
Tidal ¹					
Vegetated:	222,368 (VIMS)	-4.9	-6.1	-24.9	-5.0
Non-vegetated: ²	116,210 (NWI)	-33.4	-69.0	-112.5	-33.9
Non-Tidal/Freshwater ³	909,097 (NWI)	-191.2	-178.5	NA	NA
Publicly Acquired Wetlands	No new information				
Restored Wetlands	See #2 below				
Created Wetlands	See #2 below				
Other					

¹ Vegetated tidal wetlands totals came from the VIMS Tidal Marsh Inventory, 2002. This inventory was a compilation of VIMS data gathered in the 1980s and used data taken by people on the ground that knew the Virginia coast. The previous assessment used remote data from the National Wetlands Inventory (NWI), which was done using remote data. This difference is the probable cause of the significant discrepancy in assessments. Non-vegetated came from NWI from the 1980s and 1990s. The trends data came from queries at this VIMS website: <http://ccrm.vims.edu/wetlands/copyright.html>.

² Virginia includes intertidal mudflats and beaches as non-vegetated tidal wetlands.

³ This number is for Non-tidal Wetlands only, taken from the NWI. Data for freshwater wetlands specifically was not available. The trends data came from data queries at <http://www.vims.edu/rmap/wetlands/cgi-bin/nontidal.html>.

2. If information is not available to fill in the above table, provide a qualitative description of wetlands status and trends based on the best available information. Also, identify any ongoing or planned efforts to develop quantitative measures for this issue area. Provide explanation for trends.

There are several restoration and creation programs throughout the state for both tidal and non-tidal wetlands. However, comprehensive data concerning the numbers and functions of the various created and restored wetlands has been difficult to acquire. The Virginia Department of Environmental Quality (DEQ) and the Virginia Marine Resources Commission (VMRC) report that wetland restoration and creation have served to offset *permitted* non-tidal wetland losses. However, losses due to *unregulated* activities are the main contributor to the net loss of wetlands in Virginia. Below, several of the state wetlands restoration and creation programs are listed.

Several private and public sector groups are working to restore wetlands in Virginia. The Elizabeth River Project (ERP) has been involved with and worked with the cities of Chesapeake and Norfolk on small tidal wetland restoration projects. Also, through ERP's River Stars Program, several businesses along the river have funded their own wetland restoration projects on site. These projects are small; usually far less than one acre and total numbers of acres are not known. Furthermore, the Navy has been restoring tidal wetlands as a part of Superfund at a rate of about one acre per year. Lastly, the Department of Game and Inland Fisheries (DGIF) and the Department of Conservation and Recreation (DCR) continue efforts to restore non-tidal wetlands, despite limited resources.

3. Characterize direct and indirect threats to coastal wetlands, both natural and man-made. For threats identified, provide the following information: scope of threat, recent trends, and impediments to addressing the threat.

TABLE 2

Threat	2005 (Current) Significance High/Medium/Low	2000 Significance
Development/fill impacts	High	High
Alteration of hydrology	Low	Not evaluated
Erosion	Medium	Medium
Pollution	Low/Medium	Low
Channelization	Low	Low
Nuisance or exotic species	Medium	Medium
Freshwater Input	Low	Low
Sea level rise	High	Not evaluated
Other:		

Development/fill: This is the greatest identified threat to both tidal and non-tidal wetlands in Virginia; however the new “no net loss” tidal wetlands policy (*described below*) requires wetlands lost due to development to be mitigated.

The fear of erosion and the real or perceived threat of flooding are reported to be most common cause of wetland fill. In fact, the largest threat to tidal vegetated wetlands is shoreline hardening, including riprap and bulkheads, installed by both developers and homeowners to prevent erosion. Over 220 miles of hard shoreline structures were permitted between 1993 and 2004. Commercial structures, such as agricultural, commercial, industrial, and community piers, marinas, are reported to have the second greatest impact on tidal vegetated wetlands.

The largest threats to non-vegetated wetlands occur as a result of efforts to protect against erosion. The most common of these efforts are beach nourishment, bulkhead toe protection, and maintenance dredging. Local governments are the main developers of these types of projects, usually to preserve and restore public beaches. To a lesser extent, private breakwater systems also have an impact.

Erosion: This is an unquantified threat. In terms of non-tidal wetlands, erosion from stormwater run-off increases sediment levels and is considered a significant problem.

Pollution: Sources of pollution are available through the Total Maximum Daily Load (TMDL) program in which impaired waters have been identified. However, there is no easy systematic way of collecting information on the types or extent of the nonpoint pollutants from different sources, such as homeowners and agriculture. With emerging technologies for DNA tracking, identification of sources over the years may become more routine and accessible to state and local governments. There is also the need to account for the contribution of wetlands to background dissolved oxygen and fecal coliform.

Nuisance or exotic species: *Phragmites australis* continues to be an important threat to tidal wetlands. It is choking out native wetlands species and does not provide the same habitat functions as the native species it is replacing. Although several *Phragmites* control efforts have been undertaken, a comprehensive program to restore native vegetation to wetlands invaded by *Phragmites* has yet to be developed.

Purple loosestrife is a threat to both tidal and non-tidal wetlands. Of little or no value to wildlife, purple loosestrife has been found to crowd out native wetland species that provide food and shelter to native wildlife. Mute swans are an exotic species of swan that competes with Virginia’s native waterfowl for food and habitat. More studies should be done to understand the extent of these threats.

Sea level rise: Two issues associated with sea level rise cause threats to tidal wetlands. First, the methods commonly used to protect shorelines against erosion reduce the amount of sediment available in the littoral system for marshes to trap and keep pace with historic sea level rise; consequently, current rates of sea level rise appear to be out-pacing the capacity of some wetland communities to maintain appropriate elevations. Second, where shorelines are hardened wetlands cannot shift inland as the sea level rises, so wetlands are lost as they convert to subaqueous land.

Management Characterization

1. Within each of the management categories below, identify significant changes since the last assessment:

Management Category	Changes since last assessment
Regulatory Programs	Significant
Wetlands protection policies and standards	<i>Significant</i>
Impact analysis	<i>Moderate</i>
Restoration/enhancement programs	<i>Moderate</i>
Special Area Management Plans	<i>Moderate</i>
Education/outreach	<i>Moderate</i>
Wetlands creation programs	<i>Minor</i>
Mitigation banking	<i>Minor</i>
Mapping/GIS/tracking systems	<i>Moderate</i>
Acquisition programs	<i>None</i>
Other	

2. For categories with changes provide the following information for each change:

- **Characterize the scope of the change**
- **Describe recent trends**
- **Identify impediments to addressing the change**

Regulatory Programs

In previous reporting periods, the Virginia Water Protection Permit Program (VWPP) served as the mechanism whereby the Department of Environmental Quality and Virginia Water Control Board could review impoundments and water withdrawals to protect instream flows. It also was the mechanism for providing the state water quality certification under Section 401 of the Federal Clean Water Act for activities affecting both tidal and nontidal wetlands subject to permitting by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (33 U.S.C. 1344).

In 2000 the General Assembly enacted legislation amending the VWPP Program. The amendments continue the VWPP as the vehicle for 401 certification, but resolve jurisdictional issues by requiring a VWPP for (1) excavation in wetlands, and (2) other

activities affecting wetlands, including nontidal wetlands (draining, filling or dumping, permanent flooding or impounding, or new activities that cause significant alteration or degradation of existing wetlands acreage or function). In sum, the amendment confirms Virginia's jurisdiction over activities and wetlands that the DEQ had been regulating prior to 2000, but removes the program's dependency on USACE jurisdiction under the federal Clean Water Act. Prior to the amendments, applicants seeking a Section 404 permit from the USACE were required to obtain a VWPP permit for the same activity to satisfy the Section 401 requirement. After the amendment the VWPP still serves as a 401 certification where the USACE has jurisdiction, but it maintains Virginia's jurisdiction where the Corps no longer has jurisdiction.

In 2001, state regulations creating four General Permits were approved and implemented: Water Permits WP1 for less than one-half acre projects, WP2 for utility line projects, WP3 for linear transportation projects, and WP 4 for development projects. In 2005, the four General Permits were revised and General Permit WP4 now may include activities directly associated with aggregate mining (i.e., sand, gravel, and crushed or broken stone), hard rock/mineral mining (i.e., metalliferous ores), surface coal mining, and natural gas and coal bed methane gas mining, as authorized by the Virginia Department of Mines, Minerals and Energy (DMME). In addition, DEQ revised the threshold for permits that do not require mitigation, limiting the stream impacts allowed to 300 linear feet. Now, all impacts must be mitigated for projects impacting up to a one-tenth acre of surface waters, including up to 300 linear feet. This revised threshold closed a loophole that allowed extensive stream impacts without mitigation. DEQ is also developing guidance-addressing standards for stream mitigation.

Lastly, DEQ is in the process of revising the VWP Regulations (9VAC 25-210-et.al) to include regulations for water supply projects. Information on how this revision will impact wetlands is not yet available.

Wetlands protection policies and standards

The Chesapeake Bay Program is committed to "achieve no net loss of wetlands acreage and function in regulatory programs." Wetlands are viewed as a key tool for achieving nutrient reduction goals for the Bay Program. While Virginia has been able to achieve "no net loss" for permitted non-tidal wetlands, success for permitted tidal wetlands is anticipated in the coming years due to a management change. Virginia's *Wetlands Mitigation-Compensation Policy* for tidal wetlands from 1993-2004 did not accomplish the "no net loss" goal, as there was a net loss of 132 permitted tidal acres during this period. This policy allowed projects affecting less than 1,000 square feet of tidal wetlands to proceed without mitigation requirements. The Virginia Marine Resources Commission (VMRC) realized that this allowance was probably the cause of the wetlands losses for the previous 10 years. With a grant from the Coastal Program in 2005, VMRC adopted revisions to the *Wetlands Mitigation-Compensation Policy*, which intend to achieve "no net loss" of tidal wetlands by requiring "compensation of all permitted tidal wetlands losses." This updated policy removes all minimum area exemptions and allows compensation requirements to occur through mitigation banks. Compensation can happen on or off site, through mitigation banks, or, as last resort, in the form of in-lieu fees. In-lieu fees would be applied to wetlands restoration and creation projects.

As a result of a grant from the Coastal Program, in May 2005, VIMS developed an *Interagency Shoreline Management Consensus Document* providing guidance for setting priorities for

shoreline management in Virginia. The priorities, developed through collaboration with various state agencies, call for the least invasive approach. The four general categories of approach, from least to most impact, are 1) no action, 2) non-structural techniques, 3) combined non-structural and structural techniques, and 4) structural techniques. The priorities set in this document will be reflected in the permit review process.

In February 2004, DEQ issued Guidance Memorandum Number 04-2007 providing guidance on the analysis of avoidance and minimization of wetland impacts during VWP permit application review. The memorandum discusses the responsibilities of the VWP permit project manager, including analysis of physical constraints, design and construction, and conflicting requirements while considering all practical alternatives.

Assessment methodologies (health, function, extent)

DEQ has drafted a ten-year strategy for wetland monitoring and assessment in Virginia that is based upon EPA monitoring and assessment protocols. Rather than focusing on intensive monitoring of the quality of wetlands for the purposes of setting wetland water quality standards, Virginia's strategy is to use a three-tiered approach to wetlands assessment, which is currently being developed by Virginia in conjunction with other EPA-Region III states. This approach is designed to generate a nested data set, with a common minimum data set available for all identified wetlands in the state, and more extensive information available for selected subsets of wetlands and watersheds. This assessment approach will generate data used to conduct biannual reporting on the status and trends of wetlands as part of Virginia's 305(b)/303(d) Integrated Report, and to evaluate the effectiveness of regulatory and voluntary programs in meeting Virginia's mandate of a) no net loss of wetland resources through regulatory programs, and b) a net resource gain through voluntary programs. Development of DEQ's Wetland Monitoring and Assessment Strategy is being funded by a State Wetland Program Implementation Grant from the U.S. Environmental Protection Agency.

Impact analysis

Funded through the Coastal Program, the Cumulative Impact Assessment Protocol is an interactive tool used by DEQ non-tidal wetland staff. The tool maps Virginia's hydrological units and categorizes them by class and size. The tool also allows DEQ to provide a preliminary assessment of the impact to a small watershed area. A separate grant through the EPA will expand the tool to include the degree of threats to the area and function of a specific site.

The Norfolk District Corps and Virginia DEQ Recommendations for Wetland Compensatory Mitigation is an agreement between the Army Corps of Engineers and DEQ that is intended to be a guide for the development of compensatory wetland mitigation plans. The document addresses site design, permit conditions, performance, and monitoring criteria.

Restoration/enhancement programs and Wetlands creation programs

In October of 2000, Governor Gilmore established the Virginia Wetlands Restoration Coordinating Committee with a goal to increase wetland restoration on both public and private lands. The restoration and creation of wetlands is seen as vital for achieving Chesapeake Bay goals for nutrient reduction. The directors of the Department of Game and Inland Fisheries (DGIF) and the Department of Conservation and Recreation (DCR) chair the committee composed of a number of state agencies. The formation of the committee has increased

cooperation between state agencies in terms of identifying high priority sites for wetland restoration, creation, or preservation.

Special Area Management Plans

Southern Watershed Area SAMP: Started in 1996 and funded through Section 309 funds, the Southern Watershed Area Management Program (SWAMP) has identified several areas to adopt program changes, including the Multiple Benefits Conservation Plan (MBCP) in 2001. The MBCP created a Conservation Corridor system with goals to link existing protected areas, protect critical habitat, and form a set of riparian buffers around the Northwest River, the North Landing River, and Back Bay.

The MBCP Memorandum of Agreement (MOA) is an agreement between several federal, state, and local governments. The MOA is intended to achieve several goals including: improvement of communication among the regulatory and resource agencies involved in the wetlands mitigation process in the SWA; fostering collaboration among these groups in the documentation of the protected lands and mitigation sites in the SWA; the encouragement of the selection of multiple benefits sites to compensate for wetlands impacts; and employing a shared methodology when selecting compensation sites for wetlands impacts. Currently, the MBCP MOA is being used to assist wetlands mitigation for both a new highway in the area and redevelopment of a Naval Base being closed in Virginia Beach.

Education/Outreach

DEQ's public education and outreach project strongly supports the Clean Water Action Plan national goal of at least 100,000 new acres of wetlands each year by the year 2005.

Concurrently, the public outreach effort will assist in working towards the 6,000-acre Chesapeake Bay Program commitment and the overall 10,000-acre statewide restoration commitment by providing education and tools to Virginia's citizenry and local governments in order to implement their own wetland restoration/creation projects. Several training workshops have been held within the Chesapeake Bay drainage area of Virginia. As a partner to DEQ, the Alliance for the Chesapeake Bay has been responsible for scheduling four of these wetland education and outreach training workshops since the fall of 2003. The workshops were well attended, with an average of 50 people at each one. The workshops are open to all citizens interested in wetland restoration, members of watershed association groups, other established organizations, and local governments. The Alliance will work closely with Local Soil and Water Conservation Districts, Resource Conservation & Development Programs, local governments, and existing watershed organizations to plan the workshops.

In 2002, the General Assembly passed a voluntary certification program for professional wetland delineators, and expanded the Board of Certified Soil Scientists to include wetland professionals, thus forming the Board of Certified Soil Scientists and Wetland Professionals. This is seen by some as an important measure to improve education of homeowners and builders about wetlands and ways to protect them.

The VIMS Wetlands Program offers two tidal wetlands courses each year for wetlands boards and interested members of the public. The courses are held at VIMS and utilize their constructed "teaching marsh." Furthermore, the curriculum has been developed into self-taught education modules available online at the VIMS website. The teaching marsh is used for various courses arranged at the request of teachers, master gardeners, or the general public.

VIMS produces the Virginia Wetlands Report three times a year and distributes it to the wetlands board, the General Assembly, and others who request it. In each volume, the report discusses different issues relating to wetlands. VIMS also hosts a marine science day each year where hundreds of people from the public are invited to learn about marine ecology. The functions and values of marshes are discussed using the VIMS teaching marsh as an example.

Mitigation banking

The first freshwater tidal mitigation bank, the Heartquake Wetlands Bank, was established by JPM, Inc. in 2003. Located in King and Queen County, the bank consists of 35 acres along the Heartquake Creek. Also, the first saltwater tidal mitigation bank has been created in response to the new Wetlands Compensation Mitigation Policy. The Libertyville Tidal Wetlands Bank consists of about 7.5 acres of created wetlands in the city of Chesapeake to be sold as compensation for shoreline development that encroaches on wetlands. This is a positive first step in the implementation of the new policy and bears watching in the coming years.

Non-tidal wetland mitigation banks, however, are far more extensive in Virginia. The state has over 30 non-tidal wetland mitigation banks, more than half of which are located in the coastal zone. Several are owned by VDOT to offset losses due to road construction, while others are entrepreneurial ventures similar to tidal banks described above.

Guidelines for non-tidal wetland mitigation banking are currently being revised. The motivation for the revision is to include more detailed guidelines for stream mitigation. A date for release of these guidelines is not known.

Mapping/GIS/tracking systems

The DEQ plans to use GIS as part of its Wetland Monitoring and Assessment Strategy to identify and map Virginia's wetlands. Plans for this are underway, but work has yet to begin.

VIMS has developed a variety of GIS tools since the last assessment available on their website. Three of these tools, Blue Infrastructure as well as Waterfront Development and Marina Suitability, were funded by the Coastal Program.

The intent of the VIMS Blue Infrastructure project was to determine of which coastal resources are ecologically and economically significant aquatic resources and to assess the status of data available for each identified resource. The GIS-based model attempts to highlight where land use decisions may be in conflict with these sensitive and important aquatic resources.

The Waterfront Development tool uses a GIS-based model to balance expansion and economic growth with preservation of aquatic resources. The model analyzes existing land use, impacts to sensitive habitat, and potential impacts to water quality. Similarly, the Marina Suitability tool evaluates the appropriateness of sites for future marinas.

Conclusion

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.

The next logical step in managing Virginia's wetlands is to develop a "Net Gain" policy including specific measures that would help the state achieve this goal. In order to do this several gaps will need to be filled.

There needs to be more people on the ground to help identify sites for restoration, creation, and acquisition of wetlands as well as to monitor restored sites. The Virginia Wetlands Restoration Coordination Committee has improved cooperation between agencies, but this cooperation needs to be supplemented by people on the ground identifying potential sites. Related to this issue is the lack of data on restored and created wetlands. A dynamic wetland map delineating types and sizes of wetlands as well as whether they were restored or created would help with this cause. This could be addressed through DEQ's wetland mapping project. Also, there is a need to create linkages between reducing nutrients in TMDL implementation plans and identifying and targeting specific sites for wetland restoration, including consideration of whether new state policies would be helpful in creating these linkages.

Another gap is that acquisition of wetlands has become increasingly difficult as land values have significantly increased in recent years. In some coastal localities, waterfront property has increased over as much as 400% in only the last six years. Additional funding resources to acquire essential wetlands and protect them from development would further contribute a net gain goal. Public education and outreach could accomplish significant progress in the area of threats from development/ fill and a goal of net gain of wetlands.

There is a need for the officials that manage the permitting process for wetland losses to be kept up to date with wetland science. For example, educational outreach should be conducted for local wetlands boards about the critical value of "fringe" wetlands close to developed areas in comparison to more extensive wetlands further away from cities.

There is also a concern from local government officials that mitigation of wetlands doesn't happen close enough to the site of the lost wetland. Current guidelines call for mitigation of non-tidal wetlands to happen within 8-unit hydrological unit codes (HUC), which usually spans several counties. The 14-unit HUC is considered more appropriate for habitat and water quality benefits, and studies on this issue should be undertaken and presented to the General Assembly for the purpose of amending existing policies.

Finally, there is concern that the *Shoreline Management Interagency Consensus Document* will not be fully utilized as a tool for shoreline management. The next steps should be to get buy in from state agencies and local wetlands boards to use this document as the main guideline when considering alternatives for shoreline structures.

2. What priority was this area previously and what priority is it now for developing a 309 Strategy and designating 309 funding and why?

1997 Assessment

High ✓
Medium
Low

Last Assessment (2000)

High ✓
Medium
Low

This Assessment (2005)

High ✓
Medium
Low

The priority of wetlands in Virginia remains high due to the clear need for comprehensive data on the function of restored and created wetlands and potential sites for wetland restoration and creation, as well as the need to address wetland losses due to unregulated activities. A strategy will use data to help move towards a net gain of wetlands.

Wetlands: Strategy

STRATEGY: *Prioritizing Conservation Corridors for a Net Gain in Wetlands*

Summary

Through the 309 Assessment process, it was recommended that actions be taken by Virginia CZM to prioritize wetlands for preservation and restoration and to achieve a net gain in wetlands. As part of this initiative, it was recommended that the current system for identifying, prioritizing and managing wetland preservation and restoration activities be analyzed to document management gaps and overlaps and to make recommendations for improvement. Potential actions discussed included developing a restoration database to track restored wetlands and streams, as well as an assessment or inventory of prior converted wetlands.

A model for prioritizing conservation areas is already in place. The Hampton Roads Planning District Commission, in partnership with Virginia CZM, has developed conservation corridors for its localities that prioritize areas for preservation and restoration based on a number of data layers and local input. Designating the corridors requires GIS analysis and a consensus building process for achieving multiple environmental benefits. As part of the process, a memorandum of understanding was signed by all of the localities, agencies and organizations involved in land conservation and wetlands management. The MOU stated that these entities would consider the identified corridors as priority areas for future preservation and restoration initiatives, including wetlands mitigation. Under this 309 strategy, funding would be provided for the remaining seven PDCs to develop conservation corridors.

An advisory committee of wetlands managers and scientists would be formed and a report drafted that analyzes current wetlands preservation and restoration initiatives and provides recommendations for improved management. A new executive order would then be drafted and submitted to the Governor's office that addresses the recommendations of the advisory committee. Other actions to address the committee's recommendations, such as developing a restoration database or inventory of prior converted wetlands, would be undertaken as practicable.

Enforceable Policies/Outcomes

- Report on wetlands/stream preservation and restoration efforts with recommendations for improvements.
- Anticipated executive order regarding wetlands management.
- Regional conservation corridors for all coastal zone localities.
- MOUs between agencies/localities regarding use of conservation corridors to achieve multiple benefits.
- A restoration database, assessment of prior converted wetlands, or other needs identified in the wetlands report.

Tasks	Time	Budget
Task 1: Develop an analytical wetlands preservation/restoration report, with assistance from an advisory committee. Draft a new executive order that addresses the recommendations of the report including a net gain in wetlands.	Year 3	\$30,000

Task 2: Develop regional conservation corridors for seven PDCs to build consensus on areas to prioritize for preservation or restoration based on existing data layers and analyses. Funds (~\$103k/yr) are for political agreement process. Draft MOUs regarding the use of these areas to achieve multiple environmental benefits.	Years 3-5	\$311,000
Task 3: Address other report recommendations, such as development of a restoration database (especially voluntary restoration projects) or assessment of prior converted wetlands, as necessary and practicable. (~\$35k/yr).	Years 3-4	\$70,000
Total		\$411,000

Year 1	Year 2	Year 3	Year 4	Year 5	Total Request
		\$136,000	\$125,000	\$150,000	\$411,000